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ABSTRACT

A series of studies was conducted to explore three trends that have emerged from sentence combining research: (1) students with lower abilities in sentence combining and reading comprehension tend to register higher gains in both areas as a result of sentence combining instruction; (2) the broader the range of any student's sentence combining strategies, the better he or she will do in reading comprehension; and (3) specific syntactic constructions or combining transformations are indigenous to identifiable chronological stages of development. Subjects in the studies were 30 college juniors at The University of West Florida and 71 twelfth-grade and 30 sixth-grade students in the panhandle region of Florida. Results indicated that sentence combining instruction most influenced the reading and writing development of students with low abilities in these areas, that the integration of traditional and transformational sentence combining strategies influenced high school students just as dramatically as exclusive instruction in sentence combining, and that sentence combining most sensitively distinguished between and measured gains among the reading and writing skills of students who began such instruction with the lowest skills. Overall, the findings confirmed the bond between syntactic constructions in reading and writing. Two pages of references and three tables of findings conclude the document. (FL)

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# THE EFFECTS OF SENTENCE COMBINING INSTRUCTIONS ON CONTROLLED AND FREE WRITING AND ON SCORES FOR STANDARDIZED TESTS OF SENTENCE STRUCTURE AND READING COMPREHENSION

By

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Following on the suggestion of Hunt (1965) that there must be sentence attack skills from writing that relate to word-attack skills in reading, several studies have been conducted to identify such skills over the past fifteen years. Reiterating Miller's theory of "chunking" (1956), Hunt provided specific sentence-expanding structures that linked with age to clarify just how the chunks might look and when they would be predictably acquired.

As Miller purported, the human mind is limited to approximately seven chunks of information, plus or minus two, that can be perceived, processed and recalled. Thus, it follows sensibly that "as writers mature, they take more and more opportunities for consolidating sentences" (p. 53). Loban concurred in a series of related findings that reading achievement and writing effectiveness correlate among capable students with their mastery of a broad variety of syntactic

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structures used in their speaking and writing repertoires (1963, 69, and 70).

The question for recent research has been "What are the syntactic structures that chunk meaning at given ages and stages of development?" Though Hunt speculated about his T-unit and certain expanding structures within it, it remained for several studies of the 1970's and early '80's to test these structures empirically with a variety of populations. The majority of this research has taken the form of experimental study, examining the effect of sentence combining instruction on the parallel development of reading comprehension and writing maturity.

Steadman (1971), for instance, found that black 4th graders posted greater gains in both sentence maturity and reading comprehension after sentence-combining exercises. Fisher (1973) also noted that significant gains were registered among 5th, 7th, and 9th grade students, using both Hunt's measures of syntactic maturity and close tests of reading comprehension. Specially, Fisher noted that these major gains might have resulted from extremely notable advances among those students who began as the least syntactically mature. Both research projects, in fact, agreed that higher

gains were registered by the students whose pretests indicated lower syntactic proficiency.

In a related study, Smith (1974) found that junior high school students used their own predictable grammar and sentence combining strategies when they recode simple sentence facsimiles of passages they have just read. This would suggest that without overt sentence-combining instruction, younger readers seem to retain their own combinings rather than to recall those passively encountered in reading. Such inferences help clarify the primacy of sentence-combining instruction as an influence of reading comprehension. This is to say, if lower-skilled students on pretests make higher gains on both writing maturity and reading comprehension as a result of sentence-combining instruction, while similar students are not influenced in combining by the syntactic structures they read, then it is clear that sentence-combining instruction influences the decoding of similar structures in reading.

Further amplifying this suggestion, Evanechko, Olilla, and Armstrong (1974), found a high degree of relationship between what they called "the total number of communication units" in students' writing and their concomitant reading ability. They urged the use of

learning activities that would develop and reinforce such expanded sentence units as the "two-count structure" or what are better known as subject-verb-indirect-direct object and the subject-verb-object-object complement sentence patterns (p. 325). In short, their findings substantiate the need for gaining syntactic fluency in written sentence-combining exercises before this fluency can be useful in reading comprehension.

That same year, Hughes (1975) compared two groups of 12 students in 7th grade, one experimental and one control. The experimental group was instructed in sentence-combining, while the control group was not. The results of a comparison of pre and posttests indicated a close relationship between the students' reading and syntactic maturity levels. Of particular interest in this study was the use of controlled writing instruments, close tests, and a formal test of reading comprehension, the Gates-McGinitie. These three forms of assessment afforded the widely validated instrumentation absent form many previous pre and post measures. In addition, Hughes also found the greatest gains were registered by students from the lower half of the reading pretest scores.

In a study with older subjects, Evans and Ballance (1980) found a sharp distinction between mid-teenage college prep students and mid-twenty year old college students in their respective recall, recognition and use of a variety of sentence-combining strategies. The high school and college groups first read the same prose passages written at two levels of complexity, controlled by specific kinds of sentence combining transformations. Without benefit of overt instructions in sentence-combining, college students averaging 25 years old identified, recalled and used a wider variety of sentence combinings than did high school students averaging 15 years old. It was concluded here that reading and writing probably involve some parallel syntactic skills such as the replacement of pronouns and repetitious words with transformed phrases and clauses derived from surrounding, related simple sentences.

From this accumulation of findings, three trends emerge: First, lower abilities in both sentence combining and in reading comprehension tend to register higher gains in both areas as a result of sentence-combining instruction. Second, the broader the range of any student's sentence-combining strategies, the

better he or she will probably do in reading comprehension. And third, specific syntactic constructions or combining transformations are indigenous to identifiable chronological stages of development.

## PURPOSE OF THIS STUDY

To explore further apparent trends noted earlier, three studies have been carried out over the past five years at The University of West Florida in the northwestern panhandle region of the state.

The first of these conducted by Evans and Ballance (1983) compared two groups of college juniors in two groups of 15 students each, one group having received intensive sentence-combining instructions, the other traditional handbook exercises in a composition course. Both groups were pre and posttested with standardized tests of reading comprehension and Sentence Structure from the Descriptive Tests of Language Skills (1978). We had found that these tests were formatted in such a way that they required very similar processing and response in three distant types of questions on each test. For example, the "Using Complete Statements" of the "Sentence Structure Test" matched the "Understanding Direct Statements" of the "Reading Comprehension

Test"; "Placing Modifiers Appropriately" in writing sentences likewise matched "Drawing Inferences" in reading; and "Using Subordination and Coordination" in sentence structure paralleled "Understanding Main Ideas" in reading.

The results indicated that strong gains had been registered by the experimental group, though only the test result, "Placing Modifiers Appropriately," was significant in a MANOVA. Further, on a stepwise discriminant function analysis three of the subtests correctly classified more than 76% of the subjects taking the tests. There were, however, no dramatic gains made in either free writing or controlled writing passages, once again indicating that the older students with greater combining ability to start with would not gain as much as younger students with fewer combining procedures in their repertoires.

To gain more insight into the relationship of newly acquired sentence structures to reading comprehension, the original Evans-Ballance study was replicated twice with certain modifications.

In the first of these modified replications, Evans and Venetozzi studied 71 students in five twelfth grade

classes, divided into two experimental and three control groups. Both groups were pre- and posttested with the "Sentence Structure" and "Reading Comprehension" subtests of the Descriptive Tests of Language Skills" (ETS, 1978), previously used in the Evans-Ballance Study. In addition, the two groups were also compared for respective expansions of sentence length through a variety of combining transformations, both in their free writing and in their rewriting of a specially controlled paragraph composed in simple kernel sentences.

The instructor, Venetozzi, had taught only transformational sentence-combining exercises in the grammar lessons of the experimental group, while she had blended traditional grammar together with sentence-combining in the instruction of the control group. Scores of pretests and posttests of sentence structure, reading comprehension, free and controlled writing were then compared by MANOVA (SAS) consisting of 71 observations and 15 variables. The results of this comparison showed both groups, control and experimental, made significant gains between pre- and posttests on three

of four measures: Sentence Structure, $F$ (1, 69) = 20.50, $p < .4954$; Reading Comprehension, $F$ (1, 69) = 10.49, $p < .0018$; and the rewriting of the specially-controlled paragraph, $F$ (1, 69) = 7.50, $p < .0078$.

The implication of these findings suggests that exclusive instruction in sentence-combining has no more influence on student reading and writing than does an integrated curriculum involving both traditional grammar and transformational sentence-combining. Both groups made significant gains on the three parallel reading and writing test questions and on several measures of controlled-rewriting paragraph. These measures include Hunt's (1965) "Words per T-unit," and "Words per Clause." Instructor, materials, and methods biases were controlled through the use of specific directives taken from Evans' book, MAKING SENSE OUT OF SENTENCE COMBINING (Dale Seymour, Palo Alto, 1984).

In the second replication, Evans and McWilliams studied thirty sixth grade students, 13 in an experimental group taught exclusively transformational sentence-combining, and 17 in a control group who were not taught that process. This time, in addition to the pretest and posttests of Reading Comprehension, Sentence Structure, and Free Writing, the researchers had

individual reading scores on the California Test of Basic Skills (C.T.B.S.). They also took repeated measures of controlled paragraph rewritings and specific counts of sentence-expanding structures. These measures included, as before, Hunt's (1965) "Words per T-unit," and "Words per Clause." In addition, counts of Subordinate clauses and noun clauses and phrases were respectively compared against T-units in each student's rewrite.

The results of a MANOVA, comparing CTBS Reading Achievement levels and the eight pretests, showed a significant overall difference between the groups.

INSERT TABLE I HERE

Further t-test comparisons showed significant differences on four of the eight pretest measures: Sentence Structure, Words per T-unit, Words per Clause, and Reading Comprehension. Beyond this evidence, the

INSERT TABLE II HERE

researcher, Bundrick, noted that CTBS Reading Achievement levels correlated reasonably with six of the posttest measures.

In view of these differences and correlations, Bundrick conducted a MANCOVA using the CTBS Reading Achievement level as a covariate of the differences between the eight pretest and posttests. Results of this MANCOVA showed a significant difference due to groups. A follow-up univariate post hoc ANCOVA covaried the composite of CTBS Reading Achievement level and pretest scores with each of the eight post-test measures. Results of this covariance showed that the groups differed significantly on three of the eight post measures: Words per T-unit, Subordination Index, and Nominalization Index.

INSERT TABLE III HERE

DISCUSSION

The implication of these findings suggests once again that sentence combining instruction most influences the reading and writing development of students registering lower scores on tests of such skills. Confirming the earlier findings of Steadman (1971), Fisher (1973), and Hughes (1975), this study adds at least three important dimensions: First, that older subjects respond to sentence combining instruction with

gains in very specific syntactic constructions appropriate to the very specific structures found in their reading matter and used in their writing. For instance, the college juniors were distinguished by their knowledge of modifier placement, direct and complete statements, all three indicating the parallels between inference and propositional completion, whether one is reading to decode meaning and writing to encode meaning.

Second, the integration of traditional and transformational sentence-combining instructional strategies influences high school students just as dramatically as exclusive instruction in sentence-combining alone. The fact that both groups of 12th graders made significant gains indicates the similarity between the syntactic structures found in the Reading Comprehension and Sentence Structure tests and those found in the students' rewrites of the controlled paragraph. This strongly hints that a varied exploration of options for sentence expansion is particularly useful to the general needs of mid-to-late adolescents. At this age such students are reading and writing a wide variety of syntactic styles, often without understanding that similar meanings may be expressed in different syntactic constructions.

Third, sentence-combining most sensitively distinguishes between and measures gains among the reading and writing skills of those students who begin such instruction with lowest skills in those areas. For example, when adjusted for a difference in Reading Test of the CTBS designation of 6th grade fifth month, the experimental group 6th graders significantly outgained, on three posttests, the control group who were designated 9th grade third month by the same test. And these gains were made on Sentence-Expansions, Sentence Structure knowledge, and Reading Comprehension. This implies that the language acquisition timetable may accurately predict how rapidly students can acquire linguistic proficiency at predictable levels of readiness.

Overall, the bond between syntactic constructions in reading and writing has been reconfirmed and perhaps even more particularized by the study. In general, younger students or still-developing students will register the greatest gains in T-unit growth, understanding and using direct statements, placing modifiers and inferring meanings, and finally using subordination and understanding main ideas. These parallels between emergent readers and writers involve the increasing use

and understanding of subordinate clauses and phrases together with the increasing use and understanding of the noun clauses and phrase, including the "two-count" structure explained in the previous study of Evanechko, Olilla, and Armstrong (1974).

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TABLE I

MANOVA Comparing C.T.B.S. and all Measures of Reading and Writing

| VARIABLE | DF | SUM OF SQUARES | MEAN SQUARE | F VALUE | PR > F |
|---|---|---|---|---|---|
| CTBS--WRITING SCALE | 8 | 8.1422 | 1.0178 | 2.21 | .042* |
| CTBS--FREE-WRITING WORDS PER T-UNIT | 8 | 190.2205 | 23.7776 | 3.19 | .005* |
| CTBS--CONTROLLED-WRITING WORDS PER T-UNIT | 8 | 594.7960 | 74.3495 | 7.12 | .0001* |
| CTBS--SENTENCE STRUCTURE TEST | 8 | 795.7099 | 99.4637 | 7.89 | .0001* |
| CTBS--WORDS PER CLAUSE | 8 | 275.5281 | 34.4411 | 6.05 | .0001* |
| CTBS--SUBORDINATION INDEX | 8 | 6.4921 | 0.8116 | 5.81 | .0001* |
| CTBS--NOMINALIZATION INDEX | 8 | 0.7052 | 0.0880 | 7.89 | .0001* |
| CTBS--READING COMPREHENSION TEST | 8 | 2617.8341 | 327.2293 | 14.10 | .0001* |

(* = SIGNIFICANT BEYOND .05)

TABLE II

T-TEST OF CONTROL GROUP GAINS

| VARIABLE | N | MEAN | T | PR > \|T\| |
|---|---|---|---|---|
| WRITING SCALE | 17 | -0.3529 | -2.95 | .0093* |
| FREE-WRITING WORDS PER T-UNIT | 17 | 3.3159 | 3.20 | .0056* |
| CONTROLLED-WRITING WORDS PER T-UNIT | 17 | .8936 | .89 | .3871 |
| SENTENCE STRUCTURE TEST | 17 | 1.8824 | 2.06 | .0564* |
| WORDS PER CLAUSE | 17 | 2.4600 | 2.56 | .0208* |
| SUBORDINATION INDEX | 17 | .3118 | 2.20 | .0431 |
| NOMINALIZATION INDEX | 17 | .1435 | 4.59 | .0003* |
| READING COMPREHENSION TEST | 17 | 3.6471 | 3.58 | .0025* |

T-TEST OF EXPERIMENTAL GROUP GAINS

| VARIABLE | N | MEAN | T | PR > \|T\| |
|---|---|---|---|---|
| WRITING SCALE | 13 | -0.3846 | -2.13 | .0544* |
| FREE-WRITING WORDS PER T-UNIT | 13 | 2.6823 | 3.65 | .0034* |
| CONTROLLED-WRITING WORDS PER T-UNIT | 13 | 5.3515 | 6.66 | .0001* |
| SENTENCE STRUCTURE TEST | 13 | 4.0833 | 4.23 | .0014* |
| WORDS PER CLAUSE | 13 | 4.8669 | 7.09 | .0001* |
| SUBORDINATION INDEX | 13 | .5731 | 8.08 | .0001* |
| NOMINALIZATION INDEX | 13 | .2062 | 3.62 | .0035* |
| READING COMPREHENSION TEST | 12 | .9167 | .80 | .4401 |

(* = SIGNIFICANT BEYOND .05)

TABLE III

ANCOVA COMPARING SIGNIFICANT COMPOSITE COVARIATES
(CTBS AND 8 PRETESTS) WITH 8 POSTTESTS

| VARIABLE | DF | SUM OF SQUARES | MEAN SQUARE | F VALUE | PR > F |
|---|---|---|---|---|---|
| CONTROLLED-WRITING WORDS PER T-UNIT | 3 | 383.0698 | 127.6899 | 10.10 | .0001* |
| SUBORDINATION INDEX | 3 | 2.6545 | 0.8848 | 4.09 | .0167* |
| NOMINALIZATION INDEX | 3 | 0.2882 | 0.9607 | 5.53 | .0045* |

(NOTE: EACH OF THESE COVARIANCES USED ADJUSTED MEAN: C = 8.41; E = 15.42; C = 0.35; E = 0.86; C = 0.09, E = 0.33